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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/974,748	10/10/2001	Bruce M. Bina	2376.2018-000	7043
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HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			NGO, NGUYEN HOANG	
			ART UNIT	PAPER NUMBER
			2663	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/974,748

Applicant(s)

BINA ET AL.

Examiner

Nguyen Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,5,6,11 and 12 is/are allowed.
- 6) ☒ Claim(s) 7-10,13-17,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This communication is in response to the amendment of 11/04/2005. All changes to the Specification and Claims have been entered. Accordingly, Claims 1 and 5-21 are pending in the application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 13, 14, 15, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Yue et al. (US 6665402), hereinafter referred to as Yue.

Regarding claim 13 and 15, Yue discloses an apparatus for performing echo cancellation (apparatus for processing a telecommunication signal (echo cancellation)).

Yue further discloses;

of an echo cancellation unit responsible for performing traditional echo cancellation and processing of an echo-cancelled signal (a processor (echo cancellation unit) configured to perform signal processing (echo cancellation) upon a

telecommunication signal (mobile to mobile signal) and to produce a processed telecommunication signal, figure 2 and col4 lines 4-16).

of an bypass unit that acts as a switch that selectively acquire one of two modes of operation, specifically an active operation mode (echo cancellation) and an inactive operation mode (no echo cancellation) (switching unit (bypass unit) having simultaneously access to the processed telecommunication signal (active mode) and the telecommunication signal unprocessed by the signal processing function (inactive mode), col3 lines 46-60).

that the bypass unit receives as inputs, a control signal that is responsible to ensure that the echo canceller acquires the inactive mode in response to a condition indicating the level echo occurring below a certain threshold or active mode in response to a condition indicating that echo is present in the communication channel in which the processed or unprocessed signal is outputted (logic (control signal) configured to cause the process telecommunication signal or the telecommunication signal unprocessed by the signal processing function to be output by the switching unit (bypass unit) in a selective manner, col4 lines 40-53).

Regarding claim 14, Yue discloses the switching unit to be a multiplexing switching unit (digital mobile to mobile connection employing PCM multiplexed signal).

Regarding claim 16, Yue discloses a control unit (controller) responsible to ensure that echo canceller acquires active mode or inactive mode (controller producing a first

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logical signal (control signal) being used to cause switching unit to output the processed signal (active mode) or the signal unprocessed by the signal processing function (inactive mode), col4 lines 40-59).

Regarding claim 17, Yue discloses the echo canceller be implemented in software (col6 lines 65).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wintour (US 5987098), in view of Pruett et al (US Statutory Invention Registration #H1, 884), in further view of Yue et al. (US 6665402), hereinafter referred to as Wintour, Pruett, and Yue.

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Regarding claim 7, Wintour discloses a method of operating an echo cancellation system comprising connecting a first multi-channel echo canceller (fig 1 leftmost item 16, and col 10 lines 56-57) configured to selectively cancel echo in a plurality of telecommunication channels (col 2 lines 61-67) to a multi-channel telecommunication system (fig 1 item 20) that includes a system controller (fig 1 item 10), disconnecting the first multi-channel echo canceller from the telecommunications system and connecting the redundant multi-channel echo canceller to the telecommunication system (col 12 lines 27-34). However, Wintour discloses that the redundant multi-channel echo canceller must begin activity and wait a time period for the filters to converge (col 12 lines 5-11) and does not disclose monitoring, indicating, or transmitting the state condition of each channel. However, Pruett discloses a method of operating an echo canceling system including monitoring a state condition of echo cancellation in each channel (col 7 lines 46-50, wherein the controller monitors as a prerequisite to the function "retrieve"), indicating the state condition to a system controller (col 7 lines 51-53) and transmitting the state condition from the system controller to a redundant echo canceller (col 2 lines 14-24). It would have been obvious to one ordinarily skilled in the art at the time of the invention to include the monitor, indicating, and transmitting of the state condition of a channel disclosed by Pruett in the method disclosed by Wintour. The motivation would have been to eliminate the filter convergence waiting time of the redundant echo canceller disclosed by Wintour by providing a redundant echo canceller with the filter characteristics of the first echo canceller.

The combination of Wintour and Pruett further fails to disclose the specific limitation as amended, of having the first multi-channel echo canceller further configured to make concurrently available for selection to the plurality of telecommunication channels (i) a plurality of telecommunication signals processed by the first multi-channel echo canceller to produce a plurality of processed telecommunication signals and (ii) a plurality of telecommunication signals unprocessed by the first multi-channel echo canceller.

Yue however discloses of an echo cancellation unit (first echo canceller) responsible for performing traditional echo cancellation and processing of an echo-cancelled signal (figure 2 and col4 lines 4-16) and of an bypass unit within the unit that acts as a switch that selectively acquire one of two modes of operation, specifically an active operation mode (echo cancellation) and an inactive operation mode (no echo cancellation) (a plurality of signals processed by the first multi-channel echo canceller to produce a plurality of processed telecommunication signals (active mode) and a plurality of telecommunication signals unprocessed by the first multi-channel echo canceller (inactive mode), col3 lines 46-60). It would have thus been obvious to a person skilled in the art to incorporate the system of having redundant echo cancellers as disclosed by the combination of Wintour and Pruett with the apparatus for performing echo cancellation as disclosed by Yue to arrive at the invention of claim 7. The motivation to do so would have been to enhance the performance and reliability of an echo cancellation system in a mobile-to-mobile communication system, more

specifically to overcome some of the disadvantages associated with replacing echo cancellers as suggested by Wintour.

Regarding claim 8, the combination of Wintour, Pruett, and Yue discloses all the limitation of claim 8, more specifically, Yue discloses that the bypass unit monitors the peak-to-floor ratio to a threshold in order to determine if the echo canceller is in active mode or inactive mode (monitors which mode the echo canceller is in correlating to monitoring whether the processed signal or signal unprocessed by the echo canceller is outputted, col5 lines 50-60).

6. Claims 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruett et al. (US Statutory Invention Registration #H1, 884), in view of Wintour (US 5987098), in further view of Yue et al. (US 6665402), hereinafter referred to as Pruett, Wintour, and Yue.

Regarding claim 9, Pruett discloses a first echo canceller module (fig 3 leftmost item 302) comprising an echo canceller (fig 3 leftmost and lowest item 310) item and a first controller (fig 3 leftmost item 314) configured for monitoring (col 7 lines 46-50, wherein the controller monitors as a prerequisite to the function "retrieve") a state of echo cancellation (echo cancellation algorithm variable data), a second echo canceller module (fig 3 rightmost item 302) comprising an echo canceller (fig 3 rightmost and lowest item 310) and a second controller configured for establishing a state of echo cancellation (col 7 lines 10-18, after which the parameter ultimately arrives at the echo

cancellation element within the second processor as described in col 5 lines 56-61), and a system controller (combination of fig 3 items 306 and 304, illustrated also as fig 6 items 649 and 642) configured for selectively connecting the first and second echo cancellers to a telecommunication network (col 11 lines 63-65, channel is transferred so the processed signal transmitted to the wireless user from the echo canceller element of the present cell is replaced with the processed signal of the echo canceller element of the target cell, hence a selection is made), the system controller further configured for receiving (col 7 lines 10-13) and recording (it will transmit the echo cancellation state after receiving it so it must, if even for only a brief period of time, at least record it somewhere such as a shift register or buffer) from the first controller an indication of the echo cancellation state, and for transmitting to the second controller the recorded state indication (col 7 lines 13-15) such that the second echo canceller is established in operation in accordance with the recorded state information when it is connected by the system controller to the telecommunication network (col 6 lines 9-16) (fig 3 is used only to depict the internal elements of fig 6 items 648. It is made apparent in col 11 lines 59-60 that items 648 include an echo canceller element, and it is made apparent in col 11 lines 66-67 that items 648 include a controller). Pruett fails to teach explicitly disclose that the echo cancellers be multi-channel echo cancellers and that the state of echo cancellation include each channel. However, Wintour discloses an echo cancellation system with redundant multi-channel echo canceller modules (fig 1 items 16, ECRM of col 2 lines 62-63) and a system controller (fig 1 item 10) and each echo canceller module having a controller (fig 3 item 42) and multi-channel echo canceller (fig 3 items

48a-j, and col 10 lines 56-57). It would have been obvious to one ordinarily skilled in the art at the time of the invention to combine the multi-channel echo cancellers disclosed by Wintour with the echo cancellation system disclosed by Pruett to arrive at the invention of claim 9. The motivation to do so would have been to enhance the performance per unit cost of the echo cancellation system by using multi-channel echo cancellers, which allow more throughput than non-multi-channel echo cancellers.

The combination of Wintour and Pruett further fails to disclose the specific limitation as amended, of having the first and second multi-channel echo cancellers further configured to make concurrently available for selection to each telecommunication channels (i) a telecommunication signals processed by the multi-channel echo canceller to produce a plurality of processed telecommunication signals and (ii) a plurality of telecommunication signals unprocessed by the multi-channel echo canceller.

Yue however discloses of an echo cancellation unit (first/second echo canceller) responsible for performing traditional echo cancellation and processing of an echo-cancelled signal (figure 2 and col4 lines 4-16) and of an bypass unit within the unit that acts as a switch that selectively acquire one of two modes of operation, specifically an active operation mode (echo cancellation) and an inactive operation mode (no echo cancellation) (a plurality of signals processed by the multi-channel echo canceller to produce a plurality of processed telecommunication signals (active mode) and a

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plurality of telecommunication signals unprocessed by the multi-channel echo canceller (inactive mode), col3 lines 46-60). It would have thus been obvious to a person skilled in the art to incorporate the system of having redundant echo cancellers as disclosed by the combination of Wintour and Pruett with the apparatus for performing echo cancellation as disclosed by Yue to arrive at the invention of claim 9. The motivation to do so would have been to enhance the performance and reliability of an echo cancellation system in a mobile-to-mobile communication system, more specifically to overcome some of the disadvantages associated with replacing echo cancellers as suggested by Wintour.

Regarding claim 10, the combination of Wintour, Pruett, and Yue discloses all the limitation of claim 10, more specifically, Yue discloses that the bypass unit monitors the peak-to-floor ratio to a threshold in order to determine if the echo canceller is in active mode or inactive mode (monitors which mode the echo canceller is in correlating to monitoring whether the processed signal or signal unprocessed by the echo canceller is outputted, col5 lines 50-60).

7. Claims 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yue et al. (6665402), in view of Wintour (US 5987098), hereinafter referred to as Yue and Wintour.

Regarding claim 20, Yue fails to disclose the specific limitation of having a first echo canceller module, a second echo canceller module, and a system controller coupled to the first and second echo canceller modules.

Wintour however discloses a system comprising a control module for receiving and switching data; an active echo canceller connected to the control module for canceling echo in a call, and a redundant echo canceller connected to control module and that the control module comprises a switch for switching calls data (coordinating operations) between the control module and the first (active echo canceller) and second resource modules (redundant echo canceller) for processing at the first and second resource modules (a first echo canceller (active echo canceller); a second echo canceller (redundant echo canceller) and a system controller (control module), col4 lines 30-43 and col13 lines 36-46). It would have thus been obvious to a person skilled in the art to incorporate the system of having redundant echo cancellers as disclosed by Wintour with the apparatus for performing echo cancellation as disclosed by Yue to arrive at the invention of claim 20. The motivation to do so would have been to enhance the performance and reliability of an echo cancellation system in a mobile-to-mobile communication system, more specifically to overcome some of the disadvantages associated with replacing echo cancellers as suggested by Wintour.

Regarding claim 21, the combination of Yue and Wintour discloses all the limitations of claim 21, more specifically Wintour discloses the system controller (control module)

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passes a parameter between the first and second echo canceller modules the parameter (response to a sensed trigger event) being used to selectively output the processed telecommunication signal (activate redundant echo cancellers or not, col4 lines 40-56).

Allowable Subject Matter

8. Claims 1, 5, 6, 11, and 12 are allowed.
9. Claims 1 is allowable over the prior art of record since the cited references taken individually or in combination fail to particularly disclose **the first multi-channel echo canceller including a tone disabler circuit for detecting the presence of an echo canceller disabling tone within each channel and producing said logical signal in response thereto;** It is noted that the closest prior art Pruet et al. (US Statutory Invention Registration #H1, 884) shows a system for transferring echo cancellation data, comprising an echo cancellation controller module which is connected to a echo cancellation element and another echo cancellation element. However the stated prior art fails to disclose or render obvious to the above underline limitations as claimed.
10. Claims 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N.N.

Nguyen Ngo

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RICKY Q. NGO
PATENT EXAMINER